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**CONFIDENTIAL  
MEMORANDUM**

DATE: March 31, 2011

TO: Renee Nordeen, START-3 Project Manager, E & E, Seattle, Washington

FROM: Andrew Maguire, GIS Analyst, E & E, Seattle, Washington

SUBJECT: GIS Analysis of Environmental Targets and Sample Distances for  
Bremerton Gasworks Property

REF: Contract Number EP-S7-06-02  
Technical Direction Document: 10-11-0007

Below is the GIS analysis of environmental targets associated with the Bremerton Gasworks property and sample location distance from the probable point of entry (PPE) for samples collected during the Targeted Brownfields Assessment (TBA) and the Emergency Removal Action (ERA). The Bremerton Gasworks property is located in Bremerton, Washington. The coordinates used to determine these calculations are:

- Latitude: 47.578545North
- Longitude: -122.642137 West

This location is associated with the PPE of the concrete pipe into the Port Washington Narrows waterway.

The following references were used to generate this information.

- 30 X 60 minute topographic and National Wetland Inventory Quadrangle for Seattle and Tacoma.
- Washington Department of Fish and Wildlife
- Protected Resources Division, National Marine Fisheries Service, NW Region

As the concrete pipe is lower than the average high water mark, the distance to surface water is 0 feet. The surface water target distance limit (TDL) is wholly contained in radial arcs within Puget Sound. The target distance map is attached.

Wetlands are present within the TDL. The locations of the wetlands are depicted on the attached figure. Wetland frontage in miles by water body is as follows:

Water Body Name	Wetlands Frontage (miles)
Puget Sound	3.45

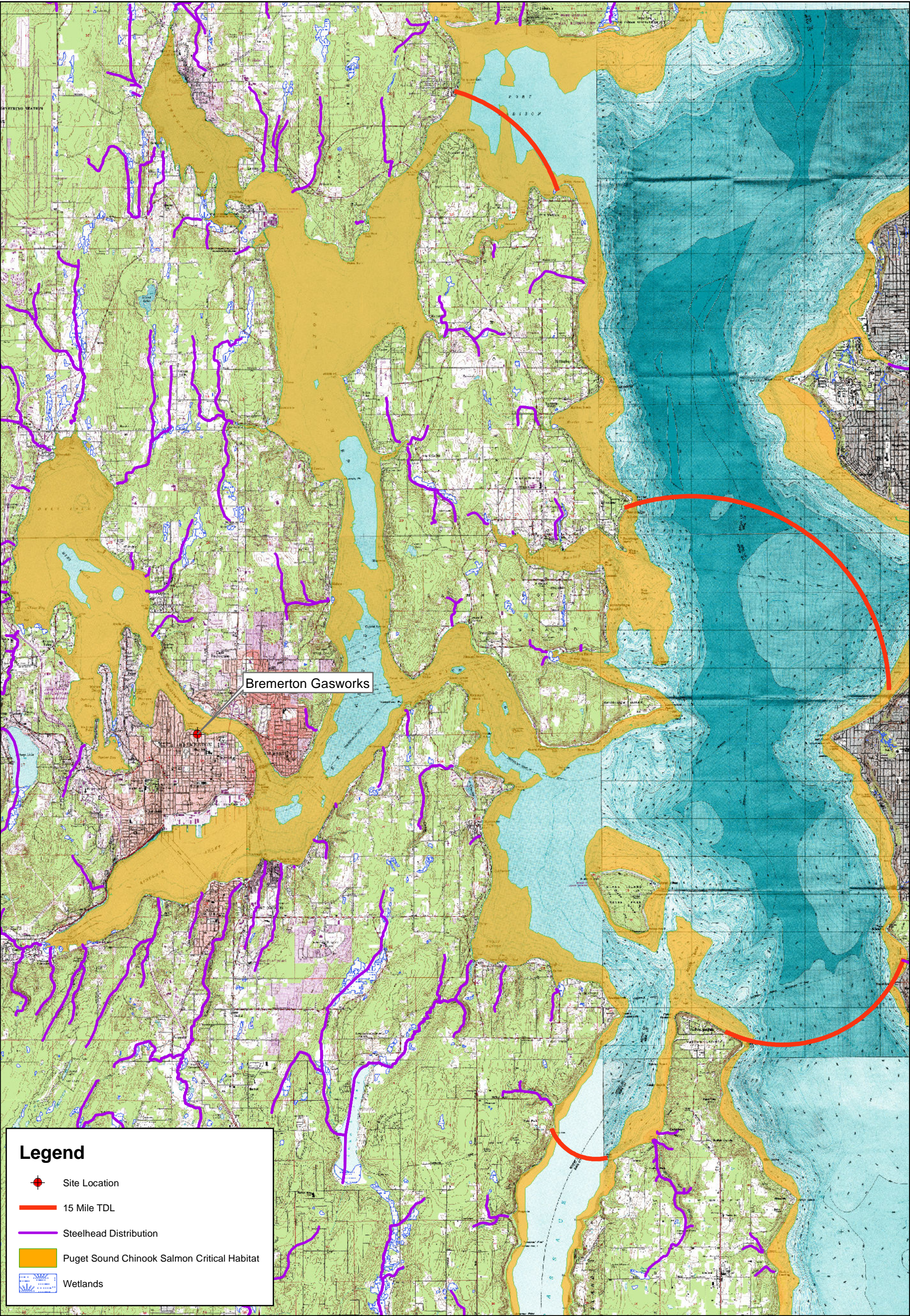
The nearest downstream wetland is located 1.7 miles northwest of the site.

Threatened species are present within the TDL. The designation and location of critical habitat is depicted on the attached figure. Steelhead critical habitat is only denoted in rivers and drainages and implied to be present in the Puget Sound. Sensitive habitat species information by water body is as follows:

<b>Water Body Name</b>	<b>Species</b>	<b>Status</b>
Puget Sound	Critical habitat for Puget Sound ESU Chinook Salmon	Federal-listed threatened
	Habitat known to be used by Puget Sound ESU Steelhead	Federal-listed threatened

The distance from the PPE to the sample points associated with the TBA and ERA samples are as follows:

<b>Sample Point</b>	<b>Distance from PPE (feet)</b>
WN01SD	46
WN02SD	87
WN03SD	167
WN04SD	266
WN05SD – Designated Background Sample	306
GL03E03 – Designated Background Sample	85
GL04E03 – Designated Background Sample	69
GL04E04 – Designated Background Sample	84
GL03E01	65
GL03W01	53
GL03W02	59
GL04E01	37
GL04E02	54
GL04W01	35
GL04W02	44
GL04W03	57
GL05E01	41
GL05E02	58
GL05E03	77
GL05W01	24
GL05W02	36
GL05W03	55
GL06E01	36
GL06E02	55
GL06E03	76
GL06W01	16
GL06W02	37
GL06W03	56



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Miles

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Figure X-XX

BREMERTON GASWORKS

Bremerton, Washington

TARGET DISTANCE LIMIT (TDL)

MAP

TDD Number:  
10-08-0009

Map Reference:  
USGS Topographical Maps 1:100,000

Date:  
March 30, 2011

Drawn by:  
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